

**IN THE CLAIMS:**

1-20 (CANCELLED)

1 21. (CURRENTLY AMENDED) A system for discovering and maintaining geographic  
2 location information for network sites, the system comprising:

3 a portable computing unit having a location discovery entity, a message generator  
4 configured to generate network messages, and a communication facility ~~for transmitting~~  
5 configured to transmit the network messages onto a computer network; and

6 a location generator configured ~~and arranged~~ to determine physical coordinates  
7 for its current location, the location generator coupled to the computing unit for providing  
8 physical coordinates thereto, whereby, the discovery entity and the message generator  
9 cooperate to acquire physical coordinates from the location generator for a given network  
10 site, and to load the acquired physical coordinates into one or more network messages,  
11 and the communication facility transmits the one or more network messages containing  
12 the physical coordinates; and

13 a network switch configured to receive the network messages that contain the  
14 physical coordinates and to store the physical coordinates in a memory location associ-  
15 ated with the network site, the network switch further configured to append the physical  
16 coordinates to a message from the network site to another network site. ~~to a designated~~  
17 network entity; and

18 ~~the one or more network messages correspond to an emergency call from the~~  
19 ~~source entity.~~

1 22. (PREVIOUSLY PRESENTED) The system of claim 21 wherein

2           the location generator includes a Global Positioning System (GPS) receiver for  
3           determining physical coordinates.

1   23. (PREVIOUSLY PRESENTED) The system of claim 22 wherein

2           the location generator further includes an inertial navigation unit configured to  
3           produce signals responsive to the unit being moved, the inertial navigation unit coupled  
4           to the portable computing unit for providing the inertial navigation signals thereto, and

5           the discovery entity is configured to integrate the inertial navigation signals with  
6           physical coordinates acquired by the GPS receiver for a substitute location to produce  
7           physical coordinates for the given network site.

1   24. (PREVIOUSLY PRESENTED) The system of claim 21 further comprising one or  
2           more antenna coupled to the location discovery entity of the portable computing unit, the  
3           one or more antenna configured to receive radio signals from a plurality of transmitting  
4           base stations, wherein

5           the radio signals are encoded with the physical coordinates of the respective base  
6           station, and

7           the location discovery entity is configured to compute the physical coordinates for  
8           its current location based on the received radio signals.

1   25. (PREVIOUSLY PRESENTED) The system of claim 24 wherein the location discov-  
2           ery entity employs triangulation techniques to compute the physical coordinates for its  
3           current location.

1 26. (PREVIOUSLY PRESENTED) The system of claim 24 wherein the radio signals are  
2 Ultra Wideband (UWB) radio signals.

1 27. (PREVIOUSLY PRESENTED) The system of claim 21 wherein the given network  
2 site corresponds to a Voice over Internet Protocol (VoIP) phone.

1 28. (CURRENTLY AMENDED) A method for discovering and maintaining location in-  
2 formation of a plurality of network entities forming a computer network, the method  
3 comprising the steps of:

4 utilizing a Global Positioning System (GPS) unit to derive physical coordinates of  
5 a location associated with a first network entity of the computer network;

6 generating one or more network messages containing the physical coordinates de-  
7 rived for the first network entity; and

8 sending the one or more network messages containing the physical coordinates to  
9 a second network entity of the computer network, whereby the second network entity as-  
10 sociates the physical coordinates with the first network entity;

11 appending, by the second network entity, the physical coordinates to a message  
12 sent from the first network entity to a third network entity, the message switched through  
13 the second network entity. and the one or more network messages correspond to an  
14 emergency call from the source entity.

1 29. (CURRENTLY AMENDED) A storage medium of an intermediate network device  
2 containing program instructions executable by a processing element for associating  
3 physical location information with one or more network messages originating from a  
4 source entity, the one or more network messages being directed to a destination entity,  
5 the program instructions comprising program instructions for:

6           receiving physical coordinates of the location of the source entity;

7           storing the physical coordinates received for the source entity at the intermediate

8 network device;

9           receiving the one or more network messages originating from the source entity,

10 the one or more network messages corresponding to an emergency call from the source

11 entity;

12           forwarding the one or more network messages toward the destination entity; and

13           in response to the one or more messages, sending the physical coordinates re-

14 ceived for the source entity to the destination entity, and the one or more network mes-

15 sages correspond to an emergency call from the source entity.

1   30. (PREVIOUSLY PRESENTED) The storage medium of claim 29 wherein the pro-

2   gram instructions for sending comprise program instructions for appending the physical

3   coordinates to at least one of the one or more network messages originating from the

4   source entity.

1   31. (PREVIOUSLY PRESENTED) The storage medium of claim 29 wherein the pro-

2   gram instructions for sending comprise program instructions for:

3           generating one or more network messages that are separate from the network

4   messages originating from the source entity;

5           loading the physical coordinates into the one or more separate network messages;

6   and

7           sending the one or more separate network messages to the destination entity.

1   32. (PREVIOUSLY PRESENTED) The storage medium of claim 29 wherein

2 the source entity is a Voice over Internet Protocol (VoIP) phone.

1 33. (PREVIOUSLY PRESENTED) The storage medium of claim 32 wherein the destina-  
2 tion entity corresponds to a Public Safety Answering Point (PSAP).

1 34. (PREVIOUSLY PRESENTED) The storage medium of claim 29 wherein  
2 the program instructions are executed by a network switch having a memory, and  
3 the physical coordinates are stored in the memory of the network switch.

1 35. (CURRENTLY AMENDED) A system for discovering and maintaining geographic  
2 location information for network sites, the system comprising:

3 means for generating physical coordinates corresponding to the location of a first  
4 network entity;

5 means for loading the physical coordinates generated for the first network entity  
6 into one or more network messages; and

7 means for sending the one or more network messages to a selected intermediate  
8 network device for storage thereby, ~~and the one or more network messages correspond to~~  
9 ~~an emergency call from the source entity~~

10 means for appending, at the selected intermediate network device, the physical  
11 coordinates to a message sent from the first network entity to a third network entity.

1 36. (PREVIOUSLY PRESENTED) The system of claim 35 wherein the generating  
2 means utilizes at least one of a plurality of Global Positioning System (GPS) signals and  
3 an inertial navigation unit to generate the physical coordinates.

1    37. (PREVIOUSLY PRESENTED) The system of claim 35 wherein the network sites  
2    correspond to the network entities of a computer network disposed within an office.

1    38. (PREVIOUSLY PRESENTED) The system of claim 37 wherein the network entities  
2    include one or more of Voice over Internet Protocol (VoIP) phones, personal computers,  
3    servers and intermediate network devices.

1    39. (PREVIOUSLY PRESENTED) The system of claim 35 wherein  
2            the selected intermediate network device has a plurality of ports,  
3            the physical coordinates generated for the first network entity are received on a  
4    given port,  
5            the intermediate network device associates the received physical coordinates with  
6    the given port.

1    40. (PREVIOUSLY PRESENTED) The system of claim 39 wherein the received physi-  
2    cal coordinates are bound to the given port.

1    41. (CURRENTLY AMENDED) The system as in claim 21, ~~further comprising wherein~~  
2    the message is part of an :the emergency call is-to a Public Safety Answering Point  
3    (PSAP).

1    42. (CURRENTLY AMENDED) The method of claim 28, ~~further comprising: wherein~~  
2    the message is part of an sending the emergency call to a Public Safety Answering Point  
3    (PSAP).

1 | 43. (CURRENTLY AMENDED) The storage medium of claim 29 wherein the destina-  
2 | tion entity is , comprising: storing instructions for sending the emergency call to a Public  
3 | Safety Answering Point (PSAP).

1 | 44. (CURRENTLY AMENDED) The system of claim 35, ~~further comprising:~~ wherein  
2 | the message is part of an means for sending the emergency call to a Public Safety An-  
3 | swering Point (PSAP).

1 | 45. (PREVIOUSLY PRESENTED) A method for discovering and maintaining geo-  
2 | graphic location information for network sites, comprising:  
3 |       generating physical coordinates corresponding to the location of a first network  
4 | entity;  
5 |       loading the physical coordinates generated for the first network entity into one or  
6 | more network messages;  
7 |       sending the one or more network messages to a selected intermediate network de-  
8 | vice, the selected intermediate network device having a plurality of ports;  
9 |       receiving the physical coordinates generated for the first network entity on a given  
10 | port; and  
11 |       associating the received physical coordinates with the given port.

1 | 46. (PREVIOUSLY PRESENTED) The method of claim 45, further comprising:  
2 |       binding the received physical coordinates to the given port.

1 | 47. (CURRENTLY AMENDED) The method of claim 45, further comprising:

2       generating ~~the~~ one or more network messages at the first network entity for -to  
3 ~~correspond to~~ an emergency call; and  
4       receiving the one or more network messages from the first network entity on the  
5 given port of the intermediate network device; and  
6       sending, by the intermediate device, the physical coordinates associate with the  
7 given port to a Public Safety Answering Point (PSAP) in response to receiving the one or  
8 more network messages for the emergency call.

1   48. (CANCELLED)

1   49. (PREVIOUSLY PRESENTED) The method of claim 45, further comprising:  
2       using a Voice over Internet Protocol (VoIP) phone as the first network entity.

1   50. (PREVIOUSLY PRESENTED) A system to discover and maintain geographic loca-  
2       tion information for network sites, comprising:

3       means for generating physical coordinates corresponding to the location of a first  
4       network entity;

5       means for loading the physical coordinates generated for the first network entity  
6       into one or more network messages;

7       means for sending the one or more network messages to a selected intermediate  
8       network device, the selected intermediate network device having a plurality of ports;

9       means for receiving the physical coordinates generated for the first network entity  
10      on a given port; and

11      means for associating the received physical coordinates with the given port.



1    51. (PREVIOUSLY PRESENTED) The system of claim 50, further comprising:

2            means for binding the received physical coordinates to the given port.

1    52. (CURRENTLY AMENDED) The system of claim 50, further comprising:

2            means for generating ~~the~~ one or more network messages at the first network entity  
3 for to correspond to an emergency call;

4            receiving the one or more network messages from the first network entity on the  
5 given port of the intermediate network device; and

6            sending, by the intermediate device, the physical coordinates associate with the  
7 given port to a Public Safety Answering Point (PSAP) in response to receiving the one or  
8 more network messages for the emergency call .

1    53. (CANCELLED)

1    54. (PREVIOUSLY PRESENTED) The system of claim 50, further comprising:

2            means for using a Voice over Internet Protocol (VoIP) phone as the first network  
3 entity.

1    55. (PREVIOUSLY PRESENTED) An intermediate network device to discover geo-  
2 graphic location information for network sites, comprising:

3            means for receiving a one or more network messages at the intermediate network  
4 device, the one or more network messages carrying physical coordinates corresponding to  
5 the location of a first network entity, the selected intermediate network device having a  
6 plurality of ports, and receiving the physical coordinates generated for the first network  
7 entity on a given port; and

8 means for associating the received physical coordinates with the given port.

1 56. (PREVIOUSLY PRESENTED) A computer readable media, comprising:

2 said computer readable media containing instructions for execution on a processor  
3 for the practice of a method for operation on an intermediate network device to discover  
4 geographic location information for network sites, having,

5 receiving a one or more network messages at the intermediate network device, the  
6 one or more network messages carrying physical coordinates corresponding to the loca-  
7 tion of a first network entity, the selected intermediate network device having a plurality  
8 of ports, and receiving the physical coordinates generated for the first network entity on a  
9 given port; and

10 associating the received physical coordinates with the given port.

1 57. (NEW) A method for discovering and maintaining geographic location information  
2 for network devices, the method comprising the steps of:

3 interconnecting a first network device to a particular port of an intermediate net-  
4 work device, the first network device including a location generator configured to deter-  
5 mine physical coordinates corresponding to the location of the first network device;

6 transmitting, by the first network device, a message including the physical coor-  
7 dinates of the first network device to the intermediate network device, the intermediate  
8 network device receiving the messages on a particular port;

9 storing the physical coordinates at a memory location of the intermediate network  
10 device, the memory location associated with the particular port;

11 subsequent to the step of transmitting, disconnecting the first network device from  
12 the particular port and interconnecting a second network device to the particular port, the

13 second network device located at substantially the same location as previously occupied  
14 by the first network device; and  
15 determining the physical location of the second network device by accessing the  
16 memory location associated with the particular port.

1 58. (NEW) The method of claim 57 wherein the second network device lacks internal  
2 capability of determining physical coordinates.

1 59. (NEW) The method of claim 57 further comprising the step of:  
2 transmitting the physical coordinates to the second network device in response to  
3 a request by the second network device.

1 60. (NEW) The method of claim 57 further comprising the step of:  
2 appending the physical coordinates to an emergency call to a third network de-  
3 vice, the emergency call originated by the second network device.

1 61. (NEW) The method of claim 57 further comprising the step of:  
2 passing the physical coordinates from the intermediate network device to a second  
3 intermediate network device, to be stored at the second intermediate network device.

1 62. (NEW) The method of claim 61 wherein the step of passing further comprise the  
2 steps of:

3 generating an Internet Control Message Protocol (ICMP) message;

4 loading the physical coordinates into the ICMP message; and

5           sending the ICMP message to the second intermediate network device.

1   63. (NEW) The method of claim 57 wherein the first network device is a portable com-  
2   puting unit and the second network device is a Voice over Internet Protocol (VoIP)  
3   phone.

1   64. (NEW) The method of claim 63 wherein intermediate network device is a network  
2   switch.

1   65. (NEW) An intermediate network device configured to maintain geographic location  
2   information for network devices, comprising:

3           a geographical location recording/reporting entity configured to communicate  
4   with a first network device coupled to a particular port of the intermediate network de-  
5   vice, and configured to receive from the first network device physical coordinates corre-  
6   sponding to the location of the first network device;

7           a non-volatile memory configured to store the physical coordinates in one or more  
8   memory locations associated with the particular port, the physical coordinates thereby  
9   associated with the particular port; and

10          the geographical location recording/reporting entity is further configured to, in re-  
11   sponse to receiving a request from a second network device coupled to the particular port,  
12   assume the second network device is located at substantially the same location as the first  
13   network device, and transmit the physical coordinates to the second network device.

1   66. (NEW) The intermediate network device of claim 65 wherein the non-volatile mem-  
2   ory includes a geo-location table indexed by port number, and wherein the memory loca-  
3   tions associated with the particular port are part of the geo-location table.

1 67. (NEW) The intermediate network device of claim 65 wherein the geographical loca-  
2 tion recording/reporting entity is further configured to append the physical coordinates to  
3 an emergency call to a third network device, the emergency call originated by the second  
4 network device.

1 68. (NEW) A method for discovering and using the geographic location information  
2 with a Voice over Internet Protocol (VoIP) telephone, the method comprising the steps  
3 of:

4 interconnecting the VoIP telephone to a particular port of a network switch, the  
5 particular port associated with a memory entry in a memory of the network switch, the  
6 memory entry storing predetermined physical coordinates for use with any network de-  
7 vice interconnect to the particular port;

8 receiving the physical coordinates at the VoIP telephone from the intermediate  
9 network device; and

10 appending, by the VoIP telephone, the physical coordinates to at least one call  
11 message transmitted by the VoIP telephone.

1 69. (NEW) The method of claim 68 wherein the at least one call is part of an emergency  
2 call to a Public Safety Answering Point (PSAP).

1 70. (NEW) The method of claim 68 further comprising the step of:  
2 requesting, by the VoIP telephone, the physical coordinates from the switch.

1 71. (NEW) The method of claim 70 wherein the step of requesting further comprises the  
2 step of:

3 transmitting one or more Internet Control Message Protocol (ICMP) messages to  
4 the network switch.

1 72. (NEW) A computer readable medium containing executable program instructions  
2 for discovering and using geographic location information with a Voice over Internet  
3 Protocol (VoIP) telephone, the executable program instructions comprising program in-  
4 structions adapted for:

5 transmitting a message from the VoIP Telephone to a particular port of a network  
6 switch that is interconnected to the telephone, the message requesting physical coordi-  
7 nates for the VoIP telephone;

8 in response to the message, receiving the physical coordinates from the switch at  
9 the VoIP Telephone;

10 appending, by the VoIP telephone, the physical coordinates to an emergency call  
11 transmitted by the VoIP telephone.

1 73. (NEW) The computer readable medium of claim 72 wherein the emergency call is to  
2 a Public Safety Answering Point (PSAP).